UNITED STATES PATENT AND TRADEMARK OFFICE

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10/563,953	01/10/2006	Hasse Sinivaara	60091.00447	3591

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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *10 January 2006*.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-30* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) *15-21 and 25-30* is/are allowed.
6) ☒ Claim(s) *1,2,6-8,10,11,13,14 and 22-24* is/are rejected.
7) ☒ Claim(s) *3-5,9 and 12* is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a) ☐ All b) ☐ Some * c) ☐ None of:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. _____.
    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) submitted on 01/10/2006 has been

placed in record and considered by the examiner.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

I) Claims 1, 2, 6, 13, 14, 22 and 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Fischer (US 2004/0246932) in view of Ayyagari (US 2002/0176366).

Regarding claim 1, Fischer discloses a method for broadcasting beacon frames

("all of those parameters are broadcast in beacon frames that are sent at a regular

interval" see [0036]) in a short-range wireless ad-hoc network ("An IBSS is usually an

ad-hoc network" see [0037]) including a plurality of wireless terminals ("In an IBSS, all of

the STAs are responsible for sending beacons" see [0037]), the method comprising the

steps of:

establishing a beacon interval ("wireless terminal first determines" see [0046] and

fig. 5 A step 504) for an ad-hoc network ("An IBSS is usually an ad-hoc network" see

[0037] and [0045]), the beacon interval being established in a first wireless terminal

("local LSTT is less than the sum of the Target Beacon Transition Time (TBTT) and the

Minimum Long Slot Epoch (MLSE)" see [0047] and fig. 5A step 508);

broadcasting beacon frames ("the LSTT field of the beacon frame which is

scheduled for transmission at TBTT" see [0077]; "beacon is then sent" see [0047]) from

the first wireless terminal at the beacon intervals ("all of those parameters are broadcast

in beacon frames that are sent at a regular interval" see [0036]), whereby the first

wireless terminal starts to act as a beacon broadcaster in the ad-hoc network and one

wireless terminal at a time acts as the beacon broadcaster ("wireless terminal that

operates according to FIG. 5A receives beacons and may transmit beacons" see [0045

and fig. 5A) during normal operation of the ad-hoc network ("In an IBSS, the wireless

terminals of the IBSS share beaconing duties" see [0037]).

But, Fischer does not particularly show introducing an identifier list into at least

some of the beacon frames, the identifier list including identifiers of wireless terminals

belonging to the ad-hoc network. However in analogous art, Ayyagari teaches

introducing an identifier list into at least some of the beacon frames ("the STA also

presents a list" see [0049]), the identifier list including identifiers of wireless terminals

belonging to the ad-hoc network ("This retrieved list includes information regarding the

STAs beaconing in Ad Hoc mode" see [0049]). Since, Fischer and Ayyagari are related

to Ad-hoc wireless network; and/or more specifically they both are concerned with

transmitting the beacon signal; therefore, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to modify the system of Fischer as

taught by Ayyagari for purpose of providing the STAs beaconing information to all STAs

associating with the particular IBSS; thus making the process of broadcasting much faster and saving the power consumption of the STA as the known beaconing information being provided.

Regarding claim 2, Fischer discloses the method according to claim 1, further comprising a step of utilizing the identifier list if another wireless terminal than said first wireless terminal is to be selected as the beacon broadcaster ("In an IBSS, the wireless terminals of the IBSS share beaconing duties" see [0037]).

Regarding claim 6, Fischer discloses the method according to claim 1, further comprising a step of transmitting, when a wireless terminal joins the ad-hoc network ("joins" see [0040]), an identifier of the wireless terminal to the wireless terminal currently acting as the beacon broadcaster ("In an IBSS, the wireless terminals of the IBSS share beaconing duties" see [0037]).

Regarding claim 13, Fischer discloses the method according to claim 1, wherein the identifier list contains MAC addresses of the wireless terminals belonging to the ad-hoc network ("MAC address" see [0037]).

Regarding claim 14, Fischer discloses the method according to claim 1, further comprising a step of inserting power state information in the identifier list, the power state information indicating whether a wireless terminal mentioned in the list is in a

power save state ("idle sate" see [0039] and "idle operation" see [0043]).

Regarding claim 22, Fischer discloses a wireless terminal (fig. 7) for a wireless

short-range ad-hoc network ("An IBSS is usually an ad-hoc network" see [0037] and

[0045]), the wireless terminal comprising beacon broadcasting means for broadcasting

beacon frames at beacon intervals in the ad-hoc network ("all of those parameters are

broadcast in beacon frames that are sent at a regular interval" see [0036]).

But, Fischer does not particularly show wherein the beacon broadcasting means

are configured to insert an identifier list in at least some of the beacon frames, the

identifier list including identifiers of wireless terminals belonging to the ad-hoc network.

However in analogous art, Ayyagari teaches inserting an identifier list in at least some of

the beacon frames ("the STA also presents a list" see [0049]), the identifier list including

identifiers of wireless terminals belonging to the ad-hoc network ("This retrieved list

includes information regarding the STAs beaconing in Ad Hoc mode" see [0049]).

Since, Fischer and Ayyagari are related to Ad-hoc wireless network; and/or more

specifically they both are concerned with transmitting the beacon signal; therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify the system of Fischer as taught by Ayyagari for purpose of providing the

STAs beaconing information to all STAs associating with the particular IBSS; thus

making the process of broadcasting much faster and saving the power consumption of

the STA as the known beaconing information being provided.

Regarding claim 23, Fischer discloses the wireless terminal according to claim

22, further comprising means for establishing a beacon interval for the ad-hoc network

("all of those parameters are broadcast in beacon frames that are sent at a regular

interval" see [0036]).

II) Claims 7, 8, 10, 11 and 24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Fischer in view of Ayyagari and further in view of Runick (US

2002/0131371).

Regarding claim 7, Fischer and Ayyagari disclose the method according to claim

1, except a step of sending at least one traffic announcement message to the wireless

terminal currently acting as the beacon broadcaster, each traffic announcement

message identifying at least one wireless terminal for which another wireless terminal

has data to be delivered. However in analogous art, Runick teaches sending at least

one traffic announcement message to the wireless terminal currently acting as the

beacon broadcaster "The ATIM is sent during the ATIM window, which occurs

immediately following Beacon transmission" see [0023]), each traffic announcement

message identifying at least one wireless terminal for which another wireless terminal

has data to be delivered ("block data transfer" see [0025]). Since, Fischer, Ayyagari

and Runick are related to Ad-hoc wireless network; and/or more specifically they both

are concerned with transmitting the beacon signal; therefore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to modify

the system of Fischer and Ayyagari as taught by Runick in order to save the power

consumption of the STA as "The ATIM is sent during the ATIM window, which occurs immediately following Beacon transmission".

Regarding claim 8, Fisher discloses the method according to claim 7, wherein the wireless terminal acting as the beacon broadcaster ("In an IBSS, all of the STAs are responsible for sending beacons" see [0037]) is the first wireless terminal ("wireless terminal first determines" see [0046] and fig. 5 A step 504).

Regarding claim 10, Runick discloses the method according to claim 7, further comprising a step of: based on at least one traffic announcement message, compiling a traffic indication data element; and inserting the traffic indication data element into a selected subsequent beacon frame (fig. 1 and [0030]).

Regarding claim 11, Runick discloses the method according to claim 10, further comprising a step of indicating a moment of the selected subsequent beacon frame in the beacon frame (fig. 1 and [0030]).

Regarding claim 24, Fischer and Ayyagari disclose the wireless terminal according to claim 22, except further comprising processing means for receiving and handling at least one traffic announcement message identifying at least one wireless terminal for which data is to be delivered in the ad-hoc network, the processing means being configured to (a) compile, based on the at least one traffic announcement

message, a traffic indication data element; and (b) to insert the traffic indication data

element into a selected subsequent beacon frame. However in analogous art, Runick

teaches processing means for receiving and handling at least one traffic announcement

message ("The ATIM is sent during the ATIM window, which occurs immediately

following Beacon transmission" see [0023]) identifying at least one wireless terminal for

which data is to be delivered in the ad-hoc network ("block data transfer" see [0025]),

the processing means being configured to (a) compile, based on the at least one traffic

announcement message, a traffic indication data element (fig. 1 and [0030]); and (b) to

insert the traffic indication data element into a selected subsequent beacon frame (fig. 1

and [0030]). Since, Fischer, Ayyagari and Runick are related to Ad-hoc wireless

network; and/or more specifically they both are concerned with transmitting the beacon

signal; therefore, it would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify the system of Fischer and Ayyagari as taught by

Runick in order to save the power consumption of the STA as "The ATIM is sent during

the ATIM window, which occurs immediately following Beacon transmission".

Allowable Subject Matter

3.   Claims 3-5, 9 and 12 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Regarding claim 3, the applied references fail to disclose or render obvious the

claimed limitations that the method according to claim 2, further comprising a step of

selecting another wireless terminal than said first wireless terminal as the beacon broadcaster, wherein the selecting step is performed at predetermined intervals longer than one beacon interval and the selecting step includes choosing said another wireless terminal according to a predetermined rule from the identifier list..

Regarding claim 5, the applied references fail to disclose or render obvious the claimed limitations that the method according to claim 2, further comprising a step of choosing another wireless terminal than said first wireless terminal as the beacon broadcaster, when a predetermined number of beacon intervals is elapsed without a beacon frame being broadcast, wherein said choosing step includes choosing said another wireless terminal according to a predetermined rule from the identifier list..

Regarding claim 9, the applied references fail to disclose or render obvious the claimed limitations that the method according to claim 1, further comprising a step of organizing the identifiers of the wireless terminals in a priority order, which determines the order in which the terminals act as the beacon broadcaster..

Regarding claim 12, the applied references fail to disclose or render obvious the claimed limitations that the method according to claim 10, wherein the traffic indication data element includes a bit string, where each bit corresponds to a terminal in the identifier list.

Reasons for Allowance

4.   Claims 15-21 and 25-30 are allowed.

The following is a statement of reason for the indication of allowance:

Eskin (US 7,299,007) discloses a method that includes maintaining a list of short-range wireless devices within range of a first short-range wireless device; and transmitting a message from an identified user of the first device to a second identified user of a second wireless device over a communication medium, the communication medium being selected based at least in part on whether the second device is included on the list, the selection being transparent to the user of the first device (fig. 1 and col. 7). But, Eskin does not suggest the claimed limitation beacon broadcaster means, responsive to the control means, for broadcasting beacon frames in the ad-hoc network, the beacon broadcasting means being configured to insert the identifier list in at least some of the beacon frames broadcast by the wireless terminal.

Zhong (US 2006/0193296) describes that the power management scheme for an IBSS WLAN, each booked STA knows exactly which STAs are going to send packets to it during a Beacon Interval 300. After all the STAs from which STA B is expecting data frames have finished sending their data frames to STA B, it is a waste of power to have STA B stay awake any further in the Beacon Interval 300 (see fig. 3 and [0019]). However, Zhong fails to teaches claimed limitation wherein said at least one other wireless terminal is provided with control means for deciding, based on the identifier list, whether one of the at least one other wireless terminal is to be selected as the beacon broadcaster in the ad-hoc network.

Soomro (US 2003/0002456) discloses the process 300 begins during the IBSS

start phase (step 301) with the STA initiating the IBSS network selecting a DFS interval

value (step 302), together with values for the beacon interval and announcement traffic

information message (ATIM) size, the channel sets to be supported by all stations within

the IBSS network (see fig. 3A and [0035—[0039]). But, Eskin does not suggest the

claimed limitation beacon broadcaster means, responsive to the control means, for

broadcasting beacon frames in the ad-hoc network, the beacon broadcasting means

being configured to insert the identifier list in at least some of the beacon frames

broadcast by the wireless terminal.

Consequently, all cited references fail to disclose or render obvious each and

every claimed limitation of independent claims 15 and 25, thus claims 15-21 and 25-30

are allowed.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Huy Q Phan whose telephone number is 571-272-7924.

The examiner can normally be reached on 8AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Alexander Eisen can be reached on 571-272-7687. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Huy Q Phan/
Examiner, Art Unit 2617
Date : 12/30/2008